

## SUPPORTING STATEMENT PART B

### The Ocean Enterprise: A study of US business activity in ocean measurement, observation, and forecasting.

OMB CONTROL NO. 0648-0712

#### B. COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL METHODS

*(If your collection does not employ statistical methods, just say that and delete the following five questions from the format.)*

**1. Describe (including a numerical estimate) the potential respondent universe and any sampling or other respondent selection method used. Provide data on the number of entities (e.g., establishments, State and local governmental units, households, or persons) in the universe and the corresponding sample in tabular form. The tabulation must also include expected response rates for the collection as a whole. If the collection has been conducted before, provide the actual response rate achieved.**

In 2015 the Ocean Enterprise Study investigated the scale and scope of commercial activity in the for-profit and not for profit business sectors which support ocean measurement, observation and forecasting. The objective of this study was to raise visibility and awareness of this important industry cluster, and to understand its linkages with the National Oceanic and Atmospheric Administration (NOAA) and the U.S. Integrated Ocean Observing System (IOOS®) Program.

#### *Potential Respondent Universe*

This information request seeks to update the original survey's data collection in order to better understand the trends and changes in this important business sector. The units of analysis for this project are *individual businesses* who fit pre-specified criteria. The preliminary stage of this project involves updating the original data collection by identifying new employers who meet the following criteria: (1) providers of observing system infrastructure; and/or (2) intermediaries who use ocean, coastal, and Great Lakes observational and model information to create value added products tailored for specific end-use. These new employers will be identified by compiling lists of organizations from industry associations, and then removing businesses that would not qualify based on visual inspection against inclusion criteria (e.g., the business was foreign-based or a non-profit educational institution). New businesses who meet the criteria will be added to the original database.

It is likely that almost all of the organizations added to the database will be qualified to take part in the survey. However, the first question of the included survey provides further screening (and is included in the estimated burden). The question lists a number of functions that would qualify them for the survey. If they do not perform any of the listed four broad functions, they are thanked for their time and the survey ends.

#### *Number of Entities*

The original survey identified 410 businesses that met the preliminary criteria. Of these, 159 responded to the survey. The original survey estimated that an additional 20% of qualifying businesses had not been identified. This would put the estimated respondent universe at approximately 490. As we are working with such a numerically limited universe of employers, the entire universe of identified organizations will be targeted for the survey (not a sample), with an expected response rate of 38.7% (based on the previous survey). This means that 190 organizations are ultimately expected to respond to the survey.

**2. Describe the procedures for the collection, including: the statistical methodology for stratification and sample selection; the estimation procedure; the degree of accuracy needed for the purpose described in the justification; any unusual problems requiring specialized sampling procedures; and any use of periodic (less frequent than annual) data collection cycles to reduce burden.**

The survey will be web-based. Invitations to participate in the survey will be sent to the universe of organizations in a series of four waves over one month, with each wave one week after the last. This allows for targeting adjustment given differential response rate from any strata of organizations. The emails will contain links to the survey website, as well as an opt-out option. If an organization indicates they are not interested in participating they will not be contacted further. Every attempt will be made to ensure that the final database of respondents is representative of the universe of organizations by the following stratification parameters: size of organization (number of employees), function (provider or intermediary), and geographic region (e.g., southwest, gulf, northeast). Proportional comparisons will be conducted to gauge the representativeness of the incoming surveys, and adjustments made for subsequent waves of the survey. For example, if the data is over-represented with firms performing a certain function, or in a region, it is possible that similar organizations will not be contacted in subsequent waves.

**3. Describe the methods used to maximize response rates and to deal with nonresponse. The accuracy and reliability of the information collected must be shown to be adequate for the intended uses. For collections based on sampling, a special justification must be provided if they will not yield "reliable" data that can be generalized to the universe studied.**

Pre-survey information campaigns utilizing trade publications and electronic media will be conducted to familiarize potential participants with the upcoming survey. After the initial email, reminder emails will be sent to non-responding organizations, up to a maximum of four emails, one week apart. Respondents will be removed from the list for subsequent reminder email invitations, as will organizations that have opted out of participation. The web survey has been designed to be as simple as possible, with a limited number of questions. It will be clearly outlined in the information in the invitation emails that the respondent may skip any question they choose not to answer, and that the survey should take only 30 minutes to complete. The survey will be conducted on behalf of NOAA, an organization with which this universe of respondents is familiar and, in many cases, has a working relationship. It will be clearly stated in the informational email that the data collected during the survey will be kept in strictest confidence, and the results only reported at the aggregate level.

Although every effort will be made to obtain as many responses as possible, response rates of 75% or more are rare in web-surveys, with rates in the 30% to 40% range more typical except in the case of internal, mandated situations. Therefore, it will be important that the resulting database of responses is representative of the overall universe of organizations as specified in B.1. Furthermore, as all analyses will be descriptive in nature (e.g., no statistical tests or hypothesis testing), the issue of power and response rate becomes less important given a sufficient number of responses (although it is acknowledged that the confidence intervals will be wider for smaller sample sizes.) Additionally, if a specific strata (e.g., region) is not deemed to have sufficient responses (e.g., >20) or to not be proportionally representative of the universe, then analysis will not be conducted at that level of stratification in order to avoid inaccurate representation of true values.

Non-respondents will be sent periodic reminders to participate in the survey. Additionally, those who do not respond due to wrong or old contact information (e.g., bounced email addresses) will be further researched in order to identify an individual at the business who can be re-sent the survey.

**4. Describe any tests of procedures or methods to be undertaken. Tests are encouraged as effective means to refine collections, but if ten or more test respondents are involved OMB must give prior approval.**

No test procedures involving 10 or more organizations are currently planned before deployment of the web-survey. ERISS Corporation has an internal staff that will extensively test the web-survey and platform, and address any technical or usability issues before large-scale deployment.

**5. Provide the name and telephone number of individuals consulted on the statistical aspects of the design, and the name of the agency unit, contractor(s), grantee(s), or other person(s) who will actually collect and/or analyze the information for the agency.**

Statistical consulting regarding the survey design, data collection, and data analysis will be provided by Steven Tally, Ph.D. of the ERISS Corporation. Dr. Tally has extensive experience with statistical methods and research design. Dr. Tally can be contacted at: 858-442-4058, [steven.tally@eriss.com](mailto:steven.tally@eriss.com).